

Machinability of thermally modified wood assessed with a new objective method

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The surface machined by peripheral milling can be evaluated by different means, where visual assessment or surface roughness measurement are most frequently applied. A new method, alternative to the state of the art methodologies (Goli and Sandak 2016), is proposed here to provide objective evaluation by means of an automatic system on thermally modified and unmodified wood. The formation of defects is stimulated by a purposely-designed cylindrical sample. The surface characterization is done on a prototype multi-sensor platform. The platform is composed of a laser triangulation system that reconstructs the 3D surface topography and a video camera recording the image of the same surface while the sample is rotated around its central axis. The surface is automatically reconstructed by a specially designed software that allows quality assessment and the detection of specific defects. The method is relatively rapid and allows an easy comparison of different cutting conditions useful for determination of optimal configurations. The scanner was successfully used to assess the machinability of thermally modified wood as well as of untreated control samples. The effect of sharp and dull tool on thermally modified and unmodified wood was also assessed (Sandak et. al. 2017).

References

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